

REMARKS

Independent claim 20 has been added to better protect the invention and define over the art of record. This claim is a process claim for securing a structural element in the earth. The process comprises positioning the structural element in a hole in the earth and filling the hole and surrounding the structural element with a dry cementitious mixture consisting essentially of (a) class C fly ash waste product and (b) another waste product selected from the group consisting of bottom ash, economizer ash, steel slag, blast furnace slag, and cement kiln dust and mixtures thereof. The dry mixture is devoid of any additional cement. Water is added to the hole, and the mixture is then allowed to dry, thereby hardening and securing the structural element in the hole.

Dependent process claims 3, 8, and 11-12 depend in one way or another from claim 20. Dependent claim 11 specifies bottom ash as the additional waste product component (b) in the dry cementitious mixture.

Independent claim 15 is directed toward a cementitious mixture which consists of (a) class C fly ash and (b) a member selected from the group consisting of bottom ash and economizer ash wherein the class C fly ash is present in an amount of about 5-50 wt% based on the total weight of the mixture. Claims 16-17 depend from independent claim 15.

Claims 1-2, 6-7, 9-10, 13-14, and 18-19 have been canceled herein without prejudice in order to simplify the issues for the Examiner's reconsideration. Claims 4 and 5 stand withdrawn. (See Office Action of April 27, 2009, first paragraph, page 2).

Turning first to the §112 based rejections set forth on pages 4 and 5 of the Office Action, it is respectfully submitted that these rejections have been obviated by the various amendments made to the claims or by the comments herein below.

With regard to the Examiner's concern with the term "economizer ash", the Examiner's kind attention is drawn to paragraph 12 of the instant application wherein economizer ash is defined as the ash that is removed from the economizer section of the boiler and typically has a high calcium oxide content, high unburned carbon content, and comprises particles that are prone

to clinker formation. It is respectfully submitted that the term as used in the claims is therefore definite and has a meaning that is readily appreciated by the artisan.

The Examiner has also questioned the limitation originally appearing in claims 9 and 18, now canceled, which is directed toward the lack of additional cement components. Claim 20, to be sure, now indicates that the dry mixture is devoid of any additional cement. Accordingly, in claim 20, no other cementitious component, save for the ones set forth under (a) and (b), can be present in order to satisfy the limitations of this claim.

Further, with regard to claim 15 directed toward the mixture itself, this claim indicates that the composition consists of class C fly ash and the Markush members.

For all of the above reasons, it is respectfully submitted that all of the claims are now free from any §112 based rejections.

Turning now to the art-based rejections of the claims, Strabala '058 teaches structural products such as bricks, panels, roof shingles, studs, and the like that can be made from fly ash, cellulose based materials, and adhesive binders. There is no hint or suggestion in this reference directed toward the use of the disclosed compositions in processes of the type required in instant process claim 20 and all claims depending therefrom.

Additionally, with regard to the Strabala '058 compositions, it is noted that independent claim 15 is directed toward a cementitious mixture which consists of class C fly ash and either bottom ash or economizer ash and mixtures thereof. No such compositions are taught or suggested in the '058 Strabala patent since cellulosic materials and adhesive binders are always present in the compositions set forth in the '058.

The patent to Shulman '355 teaches the preparation of cement pastes that are compressed, cured, and then crushed to form an aggregate. Each mix consists of a hydraulic cement and a non-cementitious fly ash or bottom ash to form a lightweight building product. The '355 patent is totally devoid of any teaching or suggestion of the process requirements herein set forth in independent claim 20 and the claims depending therefrom. With regard to the compositions set forth in the '355, all of the disclosed compositions include Portland cement, and same are excluded

from the scope of the instant composition and process claims. Further, the reference to de-limed C-type fly ash in the examples and throughout the disclosure highlights the requirement in Shulman '355 that the fly ash must be a "non-cementitious" fly ash. This teaches against the present requirements of class C fly ash as provided in process claim 20 as being an element of the dry cementitious mixture, and similarly, with regard to composition claim 15, the non-cementitious fly ash of Shulman '355 teaches against the inclusion of class C fly ash in a cementitious mixture as herein required. Note the definition of class C fly ash given in paragraph [0007] of the instant application which requires significant Ca content (measured as CaO) in accord with the ASTM standard. Shulman '355 teaches de-limed class C in contrast to the instant claims which require class C and which is defined by ASTM standard C 618-99.

The patent to Bennett et al. '422 is directed toward a backfilling composition which, in accordance with the disclosure, must have a controlled minimum and maximum strength. The maximum strength is controlled so that the composition can be capable of allowing "ready reexcavation". The need for ready reexcavation is set forth in column 6, lines 41-52. In order to provide for the controlled maximum strength, a major proportion of class F fly ash is provided which as stated in the disclosure at column 4, lines 30-31, has a less pronounced cementitious capacity or property than the class C fly ash. The '422 is not at all directed toward the process requirements herein set forth in claim 20 which provide for positioning of a structural element in a hole in the earth and then filling of the hole and surrounding the structural element with a dry cementitious mixture. Further, the mixes used in Bennett et al. teach against the instant requirement of claim 20 that the cementitious mixture consists essentially of class C fly ash and the selected component (b) Markush member or members. Bennett et al. '422 teaches that class F ash should be present as a major component because of its less pronounced cementitious properties. Similarly, Bennett et al. '422 is devoid of any suggestion of a composition as herein required in claim 15 which consists of class C fly ash and the requisite Markush member, namely bottom ash and economizer ash and mixtures thereof.

-8-

The '711 patent to Styron is directed toward a lightweight aggregate, and there is no hint or teaching in this reference that would render obvious any of the process requirements now set forth in independent claim 20 and all claims depending therefrom. Further, and with regard to composition claim 15, foams and accelerators are present in the '711 compositions, in sharp contrast to the requirement of instant claim 15 that the composition consists of class C fly ash and one or both of the Markush grouping members.

For all of the above reasons, it is respectfully submitted that the claims define patentable subject matter. A prompt issuance of a Notice of Allowance is accordingly solicited.

The Examiner is invited to call the undersigned attorney if, during the course of reconsideration of this application, any question or comment should arise.

Respectfully submitted,

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